

### **REMARKS**

Claims 1-3 and 11-13 are now pending in the application. No claims have been amended herein. The following remarks are believed to be fully responsive to the outstanding Office Action and are believed to place the application in condition for allowance. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the remarks contained herein.

### **REJECTION UNDER 35 U.S.C. § 103**

Claims 1-3 and 11-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Adonakis (U.S. Pat. No. 6,499,954) in view of Atkinson (U.S. Pat. No. 2,819,012). This rejection is respectfully traversed.

Applicant submits that none of the prior art references render obvious claims 1 and 11 because none of the prior art references, alone or in combination, disclose "an impeller comprising: a plurality of blades... having a surface defined by an axial direction (Z), a radius (R)... and a polar angle ( $\Theta$ )... including an inducer... including a height component in said axial direction (Z) that is substantially five to seven percent of an outer diameter of said impeller," as recited in claims 1 and 11.

As the Examiner acknowledges, Adonakis does not disclose the use of the inducer. However, the Examiner notes that Atkinson discloses the length of the inducer may be limited in compliance with rotor or tool requirements. Applicant submits that the Examiner has broadened the scope of the disclosure in Atkinson to cover the claimed inducer height component. Atkinson discloses that the axial length of the inducer portion may be limited by the allowable overall length of the rotor and machine tool

requirements (Atkinson col. 4, lines 15-17). Thus, Atkinson discloses that the inducer length may be limited by the rotor length, not the rotor requirements in general.

In addition, Applicant reiterates that the axial length (X) referred to in Atkinson is equivalent in direction to the height component in an axial direction (Z) referred to in the instant application (Atkinson col. 5, line 26 and Fig. 1). Thus, Atkinson discloses an inducer including a height component that may be limited by the allowable overall height of the rotor. Atkinson does not disclose an inducer including a height component in an axial direction (Z) that is limited by an outer diameter of the rotor or impeller.

Furthermore, as the Examiner acknowledges, Atkinson does not disclose an inducer including a height component in an axial direction (Z) that is substantially five to seven percent of an outer diameter of the impeller, as claimed. Rather, as Applicant previously submitted, Atkinson leads away from the claimed inducer height in teaching that an inducer height equal to the height of the impeller is preferred.

Moreover, Applicant notes that the Examiner has not addressed Applicant's arguments that Atkinson does not disclose the inducer height may be limited by the outer diameter of the rotor and that Atkinson teaches away from an inducer height component that is substantially five to seven percent of an outer diameter of the impeller. "The examiner must address all arguments which have not already been responded to in the statement of the rejection." MPEP 707.07(f). Thus, Applicant requests the Examiner to either change the status of this office action to non-final and address the above arguments or withdraw the rejections of claims 1 and 11.

Finally, the Examiner asserts that although Atkinson does not disclose the element of "an inducer... including a height component in said axial direction (Z) that is

substantially five to seven percent of an outer diameter of said impeller," it would have been an obvious matter of design choice to further modify the invention of Adonakis by utilizing the dimension as claimed for the purpose of improving flow efficiency. Applicant reiterates that the specification of the instant application states that three elements must be met "[t]o ensure that a received fluid stream remains attached to the impeller blades 14 under any flow condition," thereby preventing surge, and one of these three elements is that "the length of the inducer, or height of the leading edge 26 in the axial direction (Z), should be within 5% to 7% of the outer diameter of the impeller 10." Paragraphs [0042]-[0044].

The Examiner acknowledges that the specification establishes criticality to the combination of the three elements but asserts that the true question is whether each individual limitation is obvious. Applicant respectfully disagrees. "In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious." MPEP 2141.02(I), citing *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983).

Thus, Applicant submits that the Examiner has not made a prima facie case of obviousness because the Examiner has not shown that the combination of the three elements would have been obvious. More specifically, the Examiner has not made a prima facie case of obviousness with respect to the combination of the following three elements: (1) the shape of the blade must only be a function of the radius (R), (2) a vaneless diffuser should be used in conjunction with the impeller, and (3) the height of the inducer should be within 5% to 7% of the outer diameter of the impeller.

Accordingly, Applicant submits that none of the cited references disclose all of the limitations of claims 1 and 11. In addition, claims 2-3 and claims 12-13 depend from claims 1 and 11, respectively. Therefore, reconsideration and withdrawal of the rejection of claims 1-3 and 11-13 are respectfully requested.

#### **CONCLUSION**

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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